REPLY TO PRE-BID QUERIES FOR THE UPGRADATION OF EXISTING 60 MLD SEWAGE TREATMENT PLANT TO ULTIMATE BUILD CAPACITY 80 MLD AT KENGERI BY PROVIDING ELECTRO-MECHANICAL AND INSTRUMENTATION EQUIPMENTS

IFT No. BWSSB/ CE(WWM-WEST)/ ACE(WWM-P-W)/DCE(WWM-E&W)/TA-2/ 1239/2025-26 DT : 03.10.2025
Tender No.BWSSB/2025-26/WT/WORK_INDENT2471

Sl. No	Tender Clause	Tender requirement	Query Raised	Clarifications
1	Part B: Specific Contract Requirements. 4.8	Work of supply, erection, testing & commissioningof Electro-Mechanical Equipment's of the STP capacity of 16 MLD.	The scope of work for this tenderinvolves supply, erection andcommissioning ofElectromechanical equipment, inthe first part for similar project forfinancial value, BWSSB hasconsidered STP and pumpingstation experience. There is amajor overlap inElectromechanical scope for STP,CETP and pumping station, werequest you to also considerexperience for **electromechanicalworks for pumpingStation/CETP of 16 MLD**. Thiswill allow more competition.	Tender condition prevails.
2	Part B: Specific Contract Requirements. 4.8	As the tender is for upgradation of existing plant, tomaintain uniformity, easymaintenance of spares and interchangeability ofequipment, bidder will have toprocure authorization letter for technical support fromexisting original equipmentmanufacturer (OEM).	For submission of existing OEMauthorization letter, we requestyou to clarify list of existingOEMS. Also, we request you toconsider authorization letter formajor components only, as entireSTP has multiple OEMs, this willrestrict bids.	Tender condition prevails.
3	Part B: Specific Contract Requirements. 4.8	As the tender is for upgradation of existing plant, tomaintain uniformity, easymaintenance of spares and interchangeability ofequipment, bidder will have toprocure authorization letter for technical support fromexisting original equipmentmanufacturer (OEM).	There is no format attached for themanufacturing authorization letter,please share format.	Tender condition prevails.
4	Make list	There is no make list under mechanical items.	We request you to share make listof mechanical equipment.	Enclosed in Annexure 1

5	29.3 pg 30	If the security deposit is provided by the successful tenderer in the form of a bank guarantee, it shall be issued either by a nationalized / scheduled bank.	Kindly accept bank guarantee issued by major private bank Not acceptable as per tender	Tender condition prevails.
6	Info form (2) pg 43	General construction experience	Please consider electromechanical works experience as major work consists of electromechanical item.	
7	Info form (3) pg 44	Particular construction experience	Please consider electromechanical works experience as major work consists of electromechanical item.	Tender condition prevails.
8	Make list	Mechanical equipment	Please share approved make list of mechanical equipment	Enclosed in Annexure 1
9	Part B:. 4.8	Work of supply, erection, testing & commissioning of Electro - Mechanical equipment's of the STP capacity of 16 MLD.	Please consider work experience of supply, erection, testing & commissioning of electro mechanical equipments for pumping station as the work overlaps with STP. BWSSB has considered the same for similar projects. It is requested to also consider experience for electromechanical works for pumping station/CETP of 16 MLD.	Tender condition prevails.
10	Condition of Contract	Page no. 116 - Clause No. Section 6: Contract Data Advance Payment	Defect Liability Period is specified as 1 year from the date of Operational Acceptance of the Facility of each Module. However, when contractor of current tender will handover plant to existing O&M contractor. In that case, how DLP will be claimed from the contractor of current tender. Please review and Clarify.	The Defect Liability period is applicable only for the newly supplied equipment.
11	Condition of Contract	Page no. 115 - Section 6: Contract Data Defect Liability	The tender states that Advance shall be paid in 2 equal of installment of 5% each. The above conditions for advance payment are followed in large-size projects which have long completion duration. The current tender has completion duration of (9+3) months, so considering the short execution	Tender condition prevails.

			period, we request to release the advance payment in Single installment only. Please review and confirm.	
12	Condition of Contract	Page no. 21 - Section 4: Instruction To Tenderer Tender Prices 11,4	As per clause, "All taxes, duties, and other levies payable by the contractor under the contract, or for any other cause, shall be included in the rates, prices and total Tender Price submitted by the Tenderer." While as per Section 5, Conditions of Contract, Pg 79 and BOQ / Price Schedule, it is mentioned as "Amount put to tender is exclusive of GST". Both above clauses are at variance. Please clarify if quoted prices are either inclusive or exclusive of Taxes and duties.	The clause shall be read as: As per clause, "All taxes, duties, and other levies payable by the contractor under the contract, or for any other cause, shall be **considered** whilequoting the rates by the Tenderer" "Amount put to tender shall be excluding GST" The tenders shall be evaluated excluding GST and GST shall be paid as per the prevailing rates at the time of billing.
13	Condition of Contract	Missing Page numbers	In Tender document, Volume 1, various page numbers are missing, as exemplified below 1) Page nos. 35 - 39 2) Page nos. 35 - 40 3) Page nos. 45- 48 Further, the technical proposal form is also missing. Kindly provide the above-mentioned documents.	The Missing page nos shall be ignored. The tenderer shall furnish the complete Technical details of the equipments proposed to be supplied in the Technical Proposal.
14	Scope of Work & Price Schedule	1,1 - Scope of Work – Sr no 1 and Price schedule- Sr no 1 Terminal Sewage Pumping Station	As per said clause, TSPS pumps shall be provided with DN 500 (PN 10) Knife Gate Valves with actuator. However, in Price Schedule "Actuator" is missing and manual KGV is mentioned. Please review and clarify.	The DN 500 (PN 10) 5KGV shall be with actuators. The tenderer shall include the price of the actuators.

15	Scope of Work & Price Schedule	1,1- Scope of Work – Sr no 1 and Price schedule- Sr no 1 Terminal Sewage Pumping Station	Present coarse screen are of 60mm size which are to be replaced with 20mm screens. After this replacement is done, the screening material entering into the wet well would drastically reduce. Therefore, cutters are not required for the proposed pumps. This will not only ensure uniformity with the existing pumps (which don't have any cutters) but it will also avoid choking of the cutters with the grit which is entering into wet well in huge quantities during the monsoons. Please confirm.	Cutter are required for TSPS pumps
16	Scope of Work & Price Schedule	1,1- Scope of Work – Sr no 1 and Price schedule- Sr no 1 Terminal Sewage Pumping Station	It was proposed to install two additional raw sewage pumps in the tender. In this regard, it may please be noted that the existing pumps are of 1,450 m3/hour capacity which are designed as 4W+2SB basis. The 4 nos of working pumps can itself provide more than 120 MLD flow. Hence, it is proposed to keep the pumps to be supplied in the stores which can be used as additional stand-by during emergencies. This will provide operational flexibility. Please confirm.	The plant has been designed for 8 pumps, therefore two additional pumps are required.
17	Scope of Work & Price Schedule	1,1 - Scope of Work – Sr no 1 and Price schedule- Sr no 1 Coarse screen for TSPS	The clause specifies that all the old 60 mm Coarse screen in TSPS are to be replaced with new 20 mm Coarse screens. We understand that sufficient hydraulic margins are available to accommodate new 20 mm coarse screens in existing channels as 20mm screens will have higher head loss. Please confirm.	Hydraulic is adequate for for 20 mm screens.
18	Price Schedule &Part 3A Mechanical Requirement	1,1- Price schedule- Sr no 3.1 &Mechanical Requirement Sr. no 8 Primary Treatment Unit	Refer to Price Schedule item 3.1, 900 mm x 900 mm sluice valve for PTU to be provided, whereas in Part 3A of the Mechanical Requirements a Sluice gate of 900 mm X 900 mm is required. We understand that it shall be Sluice gate as per the existing STP plant details provided. Please confirm the requirement and revise the same in Price Schedule.	900mm x 900 mm Sluice **gates** shall be supplied.

19	Scope of Work, Price Schedule &Part 3A Mechanical Requirement	1&2,1,1 Scope of Work – Sr no. 4 and Price schedule- Sr no .4.1&Mechanical Requirement Sr. no 12 Primary Clarifier	As per said clause, 1200 mm x 1200 mm sluice valve for primary clarifier to be provided, whereas in Part 3A of the Mechanical Requirements a Sluice gate of 1200 mm x 1200 mm is required. We understand that it shall be Sluice gate as per the existing STP plant information. Please confirm the requirement and revise the same in Price Schedule.	1200mm x 1200 mm Sluice **gates** shall be supplied.
20	Scope of Work, Price Schedule &Part 3A Mechanical Requirement	1&2,1,1 - Scope of Work – Sr no. 4 and Price schedule- Sr no .4.1&Mechanical Requirement Sr. no 12 Air Diffusers	There is a contradiction in number of air diffusers to be installed in the 4th bio-reactor. We assume that the number of diffusers to be installed is same as per the existing aeration basin. Please confirm.	The number of diffusers has been considering spare requirements. The quantity mentioned in the schedule shall be supplied.
21	Scope of Work & Price Schedule	3,2- Scope of Work – Sr no. 9 and Price schedule- Sr no 9 Secondary Clarifier	Scope of Work specifies a 150 mm dia. KGV for flushing. However, the said valve is missing in Price Schedule Similarly, Price Schedule specifies 80 mm dia. valve for the drain to flow meter. However, the said valve is missing in Scope of Work. Please clarify the above discrepancy in Price Schedule/ Scope of Works and correct the same in tender documents.	All valves as per scope, drawings which is necessary to complete the work shall be supplied
22	Scope of Work & Price Schedule	3,2- Scope of Work – Sr no. 9 and Price schedule- Sr no 9 Secondary Clarifier	As per Scope of works, 150 mm dia. DI pipeline (approximately 60 meters) to be provided from the scum pit to the scum chamber. However, the 150 mm dia. pipeline is missing in Price Schedule. Please confirm the requirement and revise the same in Price Schedule.	All valves and pipes are as per scope, drawings which is necessary to complete the work shall be supplied
23	Part 3A Mechanical Requirement& Price Schedule	2,2Part 3A Mechanical Requirements Sr. 31 and Price schedule- Sr no 9 Secondary Clarifier	As per Part 3A Mechanical Requirements. a 450 mm flowmeter is required, but the item is missing in Price Schedule. Please review and include the missing items in the Price Schedule.	a 450 mm flowmeter shall be provided as per the piping layout diagram.

24	Scope of Work & Price Schedule	4,2- Scope of Work – Sr no. 11 and Price schedule- Sr no 11 Sludge Thickener System	Scope of Work specifies, 150mm dia DI sludge extraction line with Electro-Magnetic flow meter (80mm), with bypass Isolation valves arrangement and flushing line shall be provided. But the above items are missing in Price Schedule. Kindly examine and incorporate the omitted items into the Price Schedule.	The items mentioned in the scope of work is necessary to complete the work as per drawings and shall be supplied and installed, the price shall be included in therespective items in the price schedule.
25	Scope of Work & Price Schedule	4,2- Scope of Work – Sr no. 11 and Price schedule- Sr no 11 Sludge Thickener System	As per said clause, Scum pipe lead off piping shall be provided. But the item is missing in Price Schedule. Please review and include the missing items in the Price Schedule.	The items mentioned in the scope of work is necessary to complete the work as per drawings and shall be supplied and installed, the price shall be included in therespective items in the price schedule.
26	Scope of Work & Price Schedule	4,2- Scope of Work – Sr no. 11 and Price schedule- Sr no 11 Thickened Sludge Pump House	Scope of Work specifies - Piping, Valves and flow meter is required for Thickened Sludge pump. But the item are missing in Price Schedule. Please review and include the missing items in the Price Schedule.	The items mentioned in the scope of work is necessary to complete the work as per drawings and shall be supplied and installed, the price shall be included in therespective items in the price schedule.
27	Scope of Work & Price Schedule	4,2 - Scope of Work – Sr no. 11 and Price schedule- Sr no 11 Thickened Sludge Pump House	Scope of Work specifies -150 mm dia pipeline is to be laid (buried) from thickener to plant drain sump to drain supernatant as per drawing but the item are missing in Price Schedule. Kindly examine and incorporate the omitted items into the Price Schedule.	The items mentioned in the scope of work is necessary to complete the work as per drawings and shall be supplied and installed, the price shall be included in therespective items in the price schedule.

28	Scope of Work & Price Schedule	4,2 - Scope of Work – Sr no. 11 and Price schedule- Sr no 12 RAS pump House	As per Scope of works, DI piping for suction and discharge, valves and flow meter to be provided but the same are missing in Price Schedule. Please review and include the missing items in the Price Schedule	The items mentioned in the scope of work is necessary to complete the work as per drawings and shall be supplied and installed, the price shall be included in therespective items in the price schedule.
29	Scope of Work & Price Schedule	4,2 - Scope of Work – Sr no. 6 and Price schedule- Sr no 6 Plant Motor Control Centre	Scope of Work specifies the requirement of Power supply for Sludge Thickener and Pump, but the items are missing in Price Schedule. Kindly examine and incorporate the omitted items into the Price Schedule	The items mentioned in the scope of work is necessary to complete the work as per drawings and shall be supplied and installed, the price shall be included in therespective items in the price schedule.
30	Scope of Work & Price Schedule	4,2 - Scope of Work – Sr no. 6 and Price schedule- Sr no 6 Price Schedule	After detailed examination of the Price Schedule, it is observed that several item as annexed (Refer – Annexure 1) are missing in the Price Schedule. We estimate that these missing items have a significant cost impact on bid price. Kindly consider these items to be added to the price schedule by enhancing the estimated budget or paying under the provisional sums. Please confirm.	The items mentioned in the scope of work is necessary to complete the work as per drawings and shall be supplied and installed, the price shall be included in therespective items in the price schedule.
31	Conditions of Contract, Volume-1 and Price schedule	Page no. 119 Conditions of Contract, Appendix 1 – Terms and Procedures of Payment	As per the Conditions of Contract, Volume-1, Appendix 1 – Terms and Procedures of Payment (Page No. 119), refer below: "1. Payment terms for Erection & installation – LS 100% payment on successful completion of the **installation, testing Trial run and commissioning** 2. Payment terms for Trial run & commissioning – LS 100% payment on successful completion commissioning" Both the above clause is at variance. Erection & Installation (20%) and Trial run and commissioning (10%) are independent activity.	Appendix 1 -Terms and Procedures of Payment 1) Progressive payment for supply, delivery to the site, proper storage and acceptance, up to 70% of the contract price for the relevant item. Invoice to be Submitted. 2) LS payment on successful completion of installation

			To link the Payment for Erection & Installation with trial run and commissioning is incorrect and leads to negative cash flow. Please review and Revise the Terms and Procedures of Payment accordingly.	20% of the contract price for supply and delivery of the relevant item. 3) LS payment on successful completion of thetesting commissioning, including & rectifying any defects observed during this period 10% of the contract price for supply and delivery of the relevant item.
32	BOQ	BOQ/ Price schedule	**Point No. 14 – Testing and Commissioning**: The current price schedule provides only a single row to indicate the combined price for Erection, Testing, and Commissioning. However, since the Erection price is independent of Testing and Commissioning and follows a separate payment schedule, we kindly request that an additional row be included in the BOQ/price schedule. This will allow us to quote the Erection price and the Testing & Commissioning price separately. We request you to kindly review and amend the BOQ accordingly.	The tenderer shall furnish the billing breakup for each item after the award of contract, as per appendix 1- Terms and procedures of Payment.
33	Volume -I	Page no. 121 Conditions of Contract	Form of Technical Proposal is missing. Kindly provide the form.	The Tenderer shall submit the Technical Proposal with complete technical details of the equipments proposed to be supplied.

34	General	Extra Works	Please confirm that any item/equipment/works not included in the Price Schedule shall be considered as extra and will be paid separately by client at prevailing market rates. Please confirm.	The Tenderer shall consider all the equipments mentioned in the scope of work, Price Schedule and equipments shown in the drawings which is necessary to complete the works. Any items beyond the above requirement shall be considered under variation clause as per tender condition.
35	General	Planned shutdown of Existing STP	During execution, the existing 60 MLD Kengeri STP will require planned shutdown for interconnections and electrical integration for additional 20 MLD works under this tender. The schedule and duration for plant shutdown will be shared with client in advance. Kindly accept & acknowledge.	Shutdown of the plant shall be provided as per the requirement in the work.
36	General	Integration of proposed E&I	We understand that integration of proposed electrical & instrumentation system with existing PLC/SCADA is not a part of this tender & Price Schedule. We understand that the proposed electrical & instrumentation system shall be operated & monitored independently, no data will transfer to existing (PLC/SCADA). Please confirm. Otherwise, if above is included in Scope of works, please include the same in Price Schedule/ BOQ	There is 10% spare in the existing PLC/SCADA system. The integration of the new equipments with the existing PLC/SCADA system on need basis, is included in the tender,
37	General	Existing electrical power systems	As per the tender specifications, no changes have been envisaged in the existing electrical power systems. We understand that the existing electrical power system has spare capacity to cater to the additional proposed load. Please confirm.	The existing power supply has capacity to take additional load.

38	General	O&M of works under this tender (additional 20 MLD)	The O&M of additional 20 MLD STP stream which is provided under current works, is not in the scope of tender and also it is not a part of existing 60 MLD STP O&M works. We understand that the O&M of additional 20 MLD STP stream shall be awarded in a separate contract. Please confirm.	The existing O&M contract shall be revised after the completion of upgradation works.
39	General	Performance Guarantees	Please specify the performance guarantees to be demonstrated after the completion of works.	The Performance Guarantee is applicable for the newly installed equipment only.
40	General	16 Qualification Criteria	We presume that to qualify under this criterion, the bidder has to demonstrate experience of completed projects with scope for design, supply, erection, testing commissioning of electromechanical equipment for minimum 16 MLD capacity Sewage Treatment Plant (STP) with similar process as in existing 60 MLD STP at Kengeri.	Tender condition prevails
41	General	Extension for Bid Submission	As you are aware, during the Festival season (Diwali), suppliers and vendors will be unavailable, which may result in delays in obtaining equipment quotations. Therefore, we kindly request an extension of at least 2 weeks for the submission of bids. We would appreciate your acceptance and confirmation.	Tender condition prevails.
42	Part B: Specific Contract Requirements. 4.8	Work of supply, erection, testing & amp; commissioning of Electro-Mechanical Equipment's of the STP capacity of 16 MLD.	The scope of work for this tender involves supply, erection and commissioning of Electromechanical equipment, in the first part for similar project for financial value, BWSSB has considered STP and pumping station experience. There is a major overlap in Electromechanical scope for STP, CETP and pumping station, we request you to also consider experience for **electromechanical works for pumping Station/CETP of 16 MLD**. This will allow more competition.	Tender condition prevails.

43	Part B: Specific Contract Requirements. 4.8	As the tender is for upgradation of existing plant, to maintain uniformity, easy maintenance of spares and interchangeability of equipment, bidder will have to procure authorization letter for technical support from existing original equipment manufacturer (OEM).	For submission of existing OEM authorization letter, we request you to clarify list of existing OEMS. Also, we request you to consider authorization letter for major components only, as entire STP has multiple OEMs, this will restrict bids.	Tender condition prevails.
44	Part B: Specific Contract Requirements. 4.8	As the tender is for upgradation of existing plant, to maintain uniformity, easy maintenance of spares and interchangeability of equipment, bidder will have to procure authorization letter for technical support from existing original equipment manufacturer (OEM).	There is no format attached for the manufacturing authorization letter, please share format.	Tender condition prevails.
45	Make list	There is no make list under mechanical items.	We request you to share make list of mechanical equipment.	Enclosed in Annexure 1
46	GITA 4.7 pg 6,4.7 pg 15 & Info from (2) pg 43 Vol I	General Construction Experience	Kindly consider experience of electromechanical works as the major components of this work involves electromechanical equipment.	Tender condition prevails.
47	GITA 4.8 pg 7,4.8 pg 16 & Info from (3) pg 44 Vol I	Particular Construction Experience	Kindly consider experience of electromechanical works as the major components of this work involves electromechanical equipment.	Tender condition prevails.
48	29.3 pg 30	If the Security Deposit is provided by the successful Tenderer in the form of a Bank Guarantee, it shall be issued either by a Nationalized/Scheduled bank.	Kindly accept BG issued by major private banks.	Tender condition prevails.

Jayalakshmi B.S
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(ತ್ಯಾನೀನಿ-ಯೋಜನೆ-ಪ)

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ANNEXURE - 1

SPECIFICATIONS FOR MECHANICALLY CLEANED MULTIRAKE BAR SCREENS

1. PURPOSE & SCOPE:

a. The Mechanically cleaned bar screens shall be capable of performing the screening duties in storm water / waste water pumping stations/ water intake structure and in water and waste water treatment plants. The screens shall be suitable for operation in a flow having a high content of fibrous screenings and may be heavily grit laden. They screen shall be so constructed that there is no undue wear or deterioration during its operative life and so designed that the maintenance is kept to a minimum.

b. The Mechanically cleaned bar screens shall be supplied along with all accessories such as screens structure, bars, rakes, chains, sprockets, bushes, scraper assembly, geared motors, covers, local control panel and all fasteners required for erection /installation of the screen.

2. SPECIFICATIONS FOR SCREENS:

A. GENERAL REQUIREMENTS:

The Mechanically cleaned bar screen shall be supplied as a factory assembled single unit and shipped to site as a ready to install unit. The screens shall only be uncrated at site and installed as complete assembled unit without stripping down into components. This is to ensure that the performance integrity of the screen remains as factory tested and supplied condition.

B. DESIGN & CONSTRUCTIONAL DETAILS:

a. The screens shall be front-raked with a multiplicity of raking combs carried by two endless revolving chains on upper and lower sprockets. The rakes shall remove the screenings trapped on the rack of submerged screen bars. The screens shall be fitted with as many raking combs as required to achieve the stated raking frequencies.

b. The screenings collected from the bar rack shall be positively discharged via chutes by means of a scraper assembly which requires no manual cleaning. No screenings shall be allowed to carry over and fall back into the flow on the upstream side.

c. The Screens assembled structure should be able to withstand a minimum of 3 times the water depth for static and hydraulic forces exerted by the flow. All structural and functional parts shall be adequately sized to prevent deflection and vibration which could impair the raking operation.

d. The screens shall be of rugged design, adequate strength and constructed with stainless steel plate thickness of 4 mm for the self-carrying framework.

e. The screen should be provided with facility to operate at twice the normal operating speed during high low / flooding / higher head loss condition.

f. The screens are to be installed generally at an angle of 75^{0} to the horizontal, nominally adjusted to suit the civil structure.

g. The screens shall be able to operate in continuous mode at variable speeds and shall be suitable for both forward operation and reverse operation.

h. The design shall be such that screen field bars, rakes and tines, drive-chains, sprockets and bearings can be replaced without the need to remove the screen from the channel.

i. The screen field shall be of continuous solid taper-section bars. The bars shall be sized to withstand the differential head requirement as stipulated in the specification but shall be of dimensions 12x6x50.

j. The bars shall be individually replaceable without dismantling the screen or the rest of the screen field structure. The screen field bars shall be of sufficient length to suit the flow. The screen field length shall be equivalent to the maximum water level plus an additional 200mm of freeboard.

k. The design of screen shall be such so as to permit change in bar spacing at a later date to suit the changing incoming waste requirement.

l. The debris plate shall extend from the top of the screen field to the discharge level. The debris plate shall be true and flat such that the clearance of only 2-5 mm between the raking tines and the plate is maintained during the operation.

m. The screen shall have an inbuilt discharge chute to convey the waste collected. The discharge chute shall have an inclination of 60^{o} minimum to the horizontal and the minimum horizontal distance of 300mm between the point of discharge from the screen and the most proximate point of the screen frame thus allowing easy positioning of a discharge in to receptacle / belt conveyor / screw conveyor.

n. The raking combs shall be manufactured with removable tine-sections constructed from single elements of a minimum plate thickness of 10mm and be strengthened with support profiles of a minimum plate-thickness of 5 mm.

o. The rake tines shall protrude a minimum of 10mm into the screen field spaces to ensure complete removal of the screenings trapped on the screen field.

p. The rakes shall be bolted to the side-plates of the drive-chain using special adaptor links. The screens are to be supplied with heavy-duty chains of the roller type made entirely from stainless steels and with a minimum breaking load of 90kN. The chain pins shall be manufactured from Duplex steel.

q. Chain guides of stainless steel shall be securely fixed to sides of the screen within the recesses of the supporting framework, with both chains and guides in an arrangement that shall impose minimum hydraulic obstruction to the flow. Chain tension take-up devices shall be provided at the top of the screen.

r. The drive motor shall be continuously rated with enclosure protected to IP65 and totally enclosed fan cooled type, equipped with thermistors as desired. The drive unit inclusive of the reduction gearbox shall be directly shaft-mounted and be adequately sized to provide the required minimum raking frequencies and load-carrying capacities. The drive unit shall deliver adequate torque to the drive-shaft of the screen at any chosen speed. The drive units for the screens shall be freely interchangeable.

s. The drive-shaft shall be solid and be sized to withstand operating torque under full load but shall be of a diameter not less than 70mm. Drive shaft shall have flanged bearings.

t. Submerged sprockets shall have bush bearings with Ceramic bushes or better, to prevent extensive wear by the abrasive ingredients of the flow.

u. The screens shall incorporate an electro-mechanical overload protection device. Overload protection purely by current-sensing detection systems shall not be permitted. The electro-mechanical overload protection device must be operable when the screen is running in either forward or reverse.

v. The screen shall be capable of automatic self-cleaning when an overload situation is detected. In the event of blockage, the screen must stop, following which the controls should initiate the exercise of self-cleaning cycles. The screen must reverse in an attempt to clear the obstruction, automatically resuming forward-mode when the blockage is cleared. If the first cycle in self-cleaning mode is successful, the screen should automatically repeat the forward-reverse-forward cycle, for an adjustable number of trials.

w. In order to minimize odor emissions and for safety reasons, the screens shall be fully enclosed for the full length of the screen above operator-level. The screens shall be equipped with removable front covers clear impact-resistance UV protected polycarbonate material to allow for visual observation during operation. The screens shall also be supplied with rear-access windows made of polycarbonate and designed to cover the discharge chute.

3. ELIGIBILITY CRITERION FOR MANUFACTURER:

a. Only such screen manufacturer will be considered as eligible who are ISO: 9001-2008 certified for quality system and manufactured and supplied at least 50 numbers of similar type of screens to sewage pumping stations having the capacity of minimum 20 MLD during past 2 years.

4. GENERAL MATERIAL AND EQUIPMENT REQUIREMENTS:

a. As screens are required in Stainless Steel material to withstand the corrosive and aggressive sewage Environment, the screen manufacturer shall follow the best manufacturing practice mentioned here under to further eliminate the possibility of corrosion of screen in such a corrosive atmosphere.

   i. The screens shall be manufactured in a stainless-steel clean area i.e. in a plant where no ferrous material is cut or welded or handled. This is required for ensuring that no ferrous contamination / pick up takes place leading to corrosion of stainless-steel screens.

   ii. To ensure best workmanship, screen manufacturer must have welding PQR, WPS & Qualified welders as per ASME Section 9. The manufacturer shall be required to provide workers' welding certification. The welding is to be done in such a way that corrosion, especially fissure corrosion, is avoided. Intermediate seam-welding and open fissures are not permitted.

   iii. The manufacturer shall ensure that the entire weld joints be tested by Dye penetration test by qualified inspectors.

   iv. As an additional precaution the manufacturer of screen shall have the facility for Pickling and Passivation to remove any ferrous contamination that might have taken place during manufacturing / handling / movement of raw and fabricated material.

b. Since corrosion resistant property of stainless steel gets reduced when exposed to heat while cutting by plasma, all the cutting of stainless-steel material shall be done using heat less water jet cutting procedure.

c. All the stainless-steel material used on the assembled product will be checked for correct chemical composition using Positive Material Identification equipment. This shall be re-verified at the time of inspection.

5. MATERIAL OF CONSTRUCTION:

All parts of screen including Screen frame and support structure, Bars, Rakes, dead plate, Chain & Sprockets, chain pins and all Fasteners shall be constructed from stainless steel material grade Minimum SS 304/316L for long life in aggressive sewage environment. The grade of the stainless steel shall be as per the specification.

6. SHOP TESTING:

The screen must be completely manufactured and subsequently offered for inspection at the plant of the manufacture only. A screen assembled by a vendor and offered for inspection at the plant of a vendor / sub contractor shall not be accepted. The screen shall be subjected to following tests at manufacturer's premises before dispatch:

a.	**Dimensional Check**	Important Dimensions shall be checked with reference to the approved GA drawing.
b.	**Operational Test**	The complete screen including its carriage, rake, drive system and brake motor shall be mechanically operated and tested in dry condition to verify interference free movement and satisfactory operation. In this test the screen shall be operated for 10~15 minutes using operating arrangement. During this test the self cleaning forward – reverse – forward cycle test shall also be carried out by using a wooden piece as blockage.
c.	**Dye penetration test**	Dye penetration test to be conducted at random for checking the soundness of welding joints during the inspection. Both Procedure as well as person conducting the dye penetration test should have been certified by the outside agency as per relevant standard.
d.	**Positive Material Identification Test**	To ensure that Screens are actually made of Stainless Steel of specified grade positive material identification (PMI) test to be conducted for all important components like Bars, Frame, Dead Plate during inspection and PMI reports to be submitted to client / corporation along with joint inspection report.
e.	**Review of test certificate:**	Material test report / certificate, Motor certificate, Control Panel certificate at el to be offered for review during the inspection.
f.	**Review of WPS, PQR & Weldor's qualification certificate**	To be offered for review during the inspection and copy of same to be submitted to client / corporation along with joint inspection report.
g.	**Review of Material Test Certificates**	Material tests certificates for all important components of assembly to be furnished for its review at the time of inspection.

7. MISCELLANEOUS:

a. Packing of screens and allied accessories shall be transit worthy to avoid any possibility of damage during the transportation to the site(s).

b. The installation and commissioning of screens has to be done in the presence of manufacturer's representative(s) so as to avoid any possibility of misalignment and faulty installation.

8. SUBMISSION OF CATALOUGE, DRAWINGS AND DATA SHEET:

a. The contractor shall submit colour catalouge of the offered screen and following Technical data sheet duly filled, signed and stamped by manufacturer along with technical bid.

b. A job reference list showing location, name of client and design capacity of the mechanically cleaned bar screens shall be submitted with the technical bid for assessment.

9. TECHNICAL DATA SHEET:

Sr. No.	Item description	Unit	Technical particulars Required	Technical particulars offered by the Manufacturer
1	**General**			
	Make			
	Quality system			
	Quantity of screens	Nos		
2	**Design Requirements**			
	Plant flow	MLD		
	Design Flow capacity /screen	MLD		
	Channel Width	mm		
	Channel Depth	mm		
	Upstream water level-Max	mm		
	Average bar spacing	mm		
	Angle of inclination	Deg		
	Discharge height above coping level	mm		
	Taper bas section size	mm		
	Raking Frequency	Times/min		
	Chain breaking load -Min	kN		
	Velocity through clean screen at peak flow	m/sec		
	Head loss at 50% chocking	mm		
3	**Material of Construction**			
	Frame & support structure			
	Screen bars			
	Travelling rakes			
	Dead/Debris plate			
	Chains and sprockets			
	Chain pins			
	Bolts, nuts and fasteners			
4	**Shop Testing**			
	Dimension verification as per Approved GA drawing			
	Review of material test certificate as per Approved GA drawing			
	Functional Test at the manufacturer's end			
	Self cleaning Forward-Reverse test			
	PMI test of SS Component			

Signature and Seal of the Tenderer:----------

SECTION XIII:- MANUFACTURERS' AUTHORIZATION FORM*

(Please see Clause 11.2(a) of Instructions to Tenderers)

No. _____ dated

To

Dear Sir:

IFT No.

We _____ who are established and reputable manufacturers of _____ *(name and description of goods offered)* having factories at _____ *(address of factory)* do hereby authorize M/s _____ *(Name and address of Agent)* to submit a tender, and sign the contract with you for the goods manufactured by us against the above IFT.

No company or firm or individual other than M/s _____ are authorized to tender, and conclude the contract for the above goods manufactured by us, against this specific IFT. *(This para should be deleted in simple items where manufacturers sell the product through different stockists.)*

We hereby extend our full guarantee and warranty as per Clause 14 of the General Conditions of Contract for the goods and services offered for supply by the above firm against this IFT.

Yours faithfully,

(Name)

(Name of manufacturers)

Note: This letter of authority should be on the letterhead of the manufacturer and should be signed by a person competent and having the power of attorney to legally bind the manufacturer. It should be included by the Tenderer in its tender.

* Modify this format suitably in case where manufacturer's warranty and guarantee are not applicable for the items for which bids are invited.